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Isolation, culture and differentiation of rat (Rattus norvegicus) and hamster (Mesocricetus auratus) adipose derived multipotent mesenchymal stromal cells

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Abstract

Cell therapy of various diseases is one of the most perspective fields in modern medicine. Adipose derived autological stem cells can be obtained for therapeutic purposes. Animal model of human diseases are essential for cell therapy research. However, the most frequently used laboratory animals, such as rats and mice, can't suffer the whole rate of common diseases of modern society. At the same time Syrian hamsters can provide scientists with an appropriate animal models of these diseases. Nevertheless, we couldn't find any data on hamsters' stem cells isolation and their characteristics. In this study we first isolated Syrian hamster's adipose derived stem cells, characterized their morphology, features and differential potential in several ways. These cells are much alike multipotent mesenchymal stromal cells and can go through osteogenic and, adipogenic differentiation. We have also shown that these cells can differentiate in neurogenic way.

Keywords

Adipogenesis, Multipotent differentiation, Multipotent mesenchymal stromal cells, Neurogenesis, Osteogenesis, Syrian hamsters